Zoning in on Minimum Lot Sizes

CAUSES AND CONSEQUENCES OF MINIMUM LOT SIZE ZONING IN CONNECTICUT

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Communities in Connecticut and around the nation have long used zoning controls, such as minimum lot sizes, to regulate the pace, mix and location of development. Advocates argue that by promoting the rational, orderly development of real property zoning serves as an important tool in a region's development toolbox, improving area amenities, reconciling conflicts over competing uses, and boosting home values. Critics counter that such regulations impede the operation of free markets, distort prices and limit the availability of affordable housing. Empirical analysis can help sort through these competing claims and shed light not only on the effects of zoning controls, but also on the possible motives behind them. Evidence from Connecticut suggests that towns zone largely to ease the fiscal burden of development. The consequence, however, seems to be to lower single family home prices and restrict the supply of multi-family units.

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Since upheld as constitutional in a 1926 U.S. Supreme Court decision, land use zoning has become a nearly ubiquitous local practice. Zoning restrictions may take any number of forms: regulations on the uses of property, maximum building heights and footprints, minimum frontages, setbacks, lot sizes and other controls over property characteristics. This bewildering array of restrictions and possible combinations makes comparisons across jurisdictions difficult. But a fundamental method of regulating property is to establish a permissible lot size. So minimum lot size seems like a good yardstick to measure zoning differences across towns, and lot restrictions are likely to correlate with other zoning controls, as well.

Strictures on minimum lot sizes in Connecticut run the gamut, from negligible to substantial. In 2001, the latest year for comparable data, the average Connecticut town required single family homes to occupy at least 1.5 acres of space. But some towns, like Bethlehem and Eastford, had no formal zoning controls. Others, like Washington in the Litchfield Hills, required homes to be built on four acres or more (see graph below). Why do towns throughout the state display such wide variations in required minimum lot sizes, and what do those variations imply for the mix of development and the prices of residences in our state?

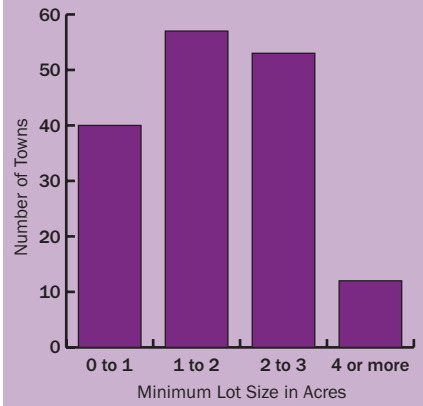
WHY ZONE?

Economists offer several explanations for communities' desire to adopt zoning restrictions. One possibility is to limit the negative externalities associated with high-density living. Siting an apartment or a strip mall complex close to a residential neighborhood,

POSSIBLE MOTIVES FOR MINIMUM LOT SIZE ZONING

- Abating Nuisances
- Easing the Fiscal Impacts of New Development
- Excluding "Undesirable" Populations

HOW MINIMUM LOT SIZES VARY ACROSS CONNECTICUT TOWNS



SOURCE: *The Connecticut Economy*.

for example, could impair the welfare of nearby homeowners exposed to the new noise, traffic and congestion disamenities. Zoning land by use and separating multi- from single-family housing can help protect neighborhood residents from such negative spillovers.

Communities may also use zoning restrictions to ease the fiscal impacts of new development. Municipalities in Connecticut and most other states rely heavily on property taxes to fund local public services such as education. Towns with good schools and inexpensive homes on small parcels would no doubt appeal to families with young children. But such modest properties may not generate tax revenue sufficient to offset the costs of the educational and other public services the occupants would consume. Requiring home lots to meet a minimum size helps ensure that owners' property tax bills compensate for the fiscal burden they impose on the community.

A third potential motive behind towns' use of restrictive zoning is less creditable: communities may impose minimum lot sizes and other restrictions to discourage "less desirable" people (such as the poor or ethnic minorities) from taking up residence in town. Used this way, zoning is not a tool for alleviating externalities or balancing budgets, but an exclusionary (i.e., discriminatory) device employed to preserve or augment the demographic homogeneity of a community.

Of course, no municipality makes zoning decisions in a vacuum. Whether, and to what degree, a town imposes zoning restrictions may depend on the behavior of surrounding communities. Compelled by competition, towns may adopt policies that mirror those of their neighbors.

WHICH MATTERS MOST?

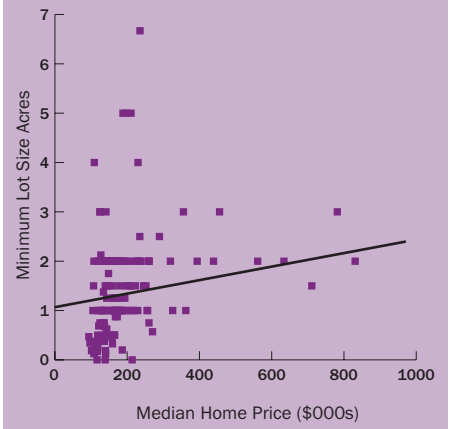
To test for which motives may best explain the variation in lot sizes across the state, I regressed minimum lot sizes, *lot*, against a set of variables designed to measure each of the several possibilities (see the first regression). Thus, to capture possible exclusionary motives, I included as explanatory variables the share of the population of neighboring towns that are nonwhite, *nonwhite*, and the share that fall below the poverty line, *poverty*, using Census data. If zoning is used as an exclusionary weapon, then as the share of the poor and the nonwhite population of adjacent municipalities increases, towns will adopt larger minimum lot sizes.

To capture the fiscal motive, I included Census data on the median price of homes in the community, *price*, and on the population growth rate between 1980 and 2000, *growth*, together with data from Connecticut's Office of Policy and Management on the per-capita equalized-net-grand-list value of nonresidential real property in town, *busENGL*. Towns with higher property values, that are growing more rapidly, and whose public services rely more on tax payments from commercial and industrial properties, might be expected to impose tighter zoning restrictions.

To measure motives tied to externalities and competing land uses, I included data from the University of Connecticut's Center for Land Use Education and Research (CLEAR) on the share of developed land by town, *developed*, based on satellite images. In rural areas not served by public sewer and water services, large lot sizes may be needed to allow adequate separation between wells and septic systems, so my model also included a dummy variable, *sewer*, for towns with municipal sewers.

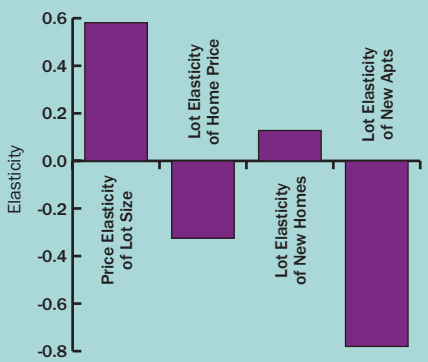
The results in the first regression suggest that fiscal motives—the desire to preserve the tax base to insure sufficient funding for public services—are the best explanation of minimum lot size zoning across Connecticut towns.

AS GO HOME PRICES, SO GO MINIMUM LOT SIZES



SOURCE: *The Connecticut Economy*.

LARGER LOTS MEAN LOWER PRICES, MORE HOMES, FEWER APARTMENTS



SOURCE: *The Connecticut Economy*.

Take the strongly significant coefficient on price for example. The size of this coefficient suggests that a 10% increase in the median home price is associated with a nearly 6% increase in minimum residential lot size. The coefficient on nonresidential property values is smaller in magnitude, though still significant. A 10% increase in commercial and industrial properties per capita raises minimum lot size some, but by only 0.5%. Together, the two property value variables offer convincing evidence of a fiscal motive behind zoning controls.

Towns also appear willing to adopt zoning restrictions in order to curb the density of further development as suggested by the positive, and significant, coefficient on *developed*^{2}. But the practical import of this finding is muted: the significant negative coefficient on *developed* suggests that zoning does not become a real factor in density control until towns reach levels of development exceeding 70%. Moreover, the statistically insignificant coefficient on *sewer* implies that a need to separate incompatible uses on a single piece of property does not help explain the variation in minimum lot sizes across towns.

There is little evidence to suggest that communities in the state use zoning as an exclusionary device. The coefficients on *nonwhite* and *poverty* are not only statistically insignificant—not meaningfully different from zero—they carry opposite signs, implying an offsetting effect on lot size.

Faster population growth rates also do not appear to generate the anticipated pressure to boost minimum lot sizes. A likely explanation is that a reverse effect is more important: smaller minimum lot sizes, which imply more modest and affordable homes, may spur growth.

Finally, the institutional setting appears to be important: the larger the number of adjacent jurisdictions, the larger the minimum lot size, other things constant. If, as the evidence on the fiscal motivation behind minimum lot size zoning suggests, residents view minimum lot sizes as a hedge against encroachment on local public services by outsiders, towns may compete to offer the largest lots possible.

RIPPLE EFFECTS

Towns appear to use minimum lot size zoning to preserve their fiscal bases, but the consequences of this practice are complex, and not necessarily intuitive. The upshot seems to be to reduce the equilibrium price of residential homes, raise the number of homes produced and lower the production of multifamily units.

Consider the supplementary regression, on determinants of home prices, that appears alongside the minimum lot size regression. The two were estimated jointly (using a two-stage technique). After controlling for factors that affect median home prices across Connecticut towns—the number of rooms in a home, proximity to New York City, local property taxes, and per-pupil educational spending—larger lot sizes are associated with lower home prices. A one-acre increase in the minimum lot size lowers prices by $42,000.

What might account for this surprising, inverse relationship between lot size and home prices? A given parcel of land will be worth more if it can be subdivided into many small lots rather than a few large ones. If land prices are very sensitive to zoning controls then, other factors constant, a home situated on a large lot could be worth less than that same home occupying a small lot.

The two regressions in the last exhibit examine determinants of the net change in the single and multi-family housing stock across towns between 1998 and 2008, using data from the Connecticut Department of Economic and Community Development.

In both cases I hypothesize that in addition to lot size, the change

PROPERTY WEALTH PROMPTS ZONING RESTRICTIONS...

Dependent Variable: Lot Size

	Coefficient	P-Value	Mean	Elasticity
Constant	1.3601	0.0013		
poverty	7.5135	0.1251	0.0482	0.2468
nonwhite	-2.9803	0.1091	0.0825	-0.1674
price	0.0045	0.0000	191.5549	0.5812
busENGL	0.0017	0.0070	45.4593	0.0538
growth	-1.0332	0.0084	0.1969	-0.1385
developed	-6.2340	0.0000	0.2919	-1.2534
developed^2	4.2373	0.0059		
sewer	0.0980	0.5468	0.4259	0.0284
adj	0.0912	0.0190	5.6111	0.3485
Adjusted R^2	0.45			

...WHILE LARGER LOTS SUPPRESS REAL ESTATE VALUES

Dependent Variable: Home Price

	Coefficient	P-Value	Mean	Elasticity
Constant	-189.8109	0.0221		
lot	-42.3518	0.0174	1.4690	-0.3248
distNY	-1.4864	0.0000	105.5802	-0.8193
mill	-9.1771	0.0000	17.6162	-0.8440
edpercap	35.2051	0.0000	8.7322	1.6049
rooms	74.4916	0.0000	6.1049	2.3741
Adjusted R^2	0.67			

Coefficient values measure the unit change in the dependent variable associated with a one unit change in an independent variable, holding other variables constant. A p-value is the chance of finding such an extreme coefficient value if in fact no relationship actually exists between the dependent and independent variable. The smaller the p-value, the more statistically significant the result. Elasticities measure the percentage change in the dependent variable associated with a one-percent increase in the independent variable.

in a town's housing stock is a function of the per-room price of homes, median apartment rents, per-capita income, age of existing homes, population growth rate and distance from Boston. In the single-family home regression, the net change in housing stock is positively related to minimum lot sizes; while in the multi-family regression, the change in stock and lot size are inversely related.

The magnitudes of the effects of lot size restrictions on changes in housing stocks are instructive as well. A 10% increase in minimum lot sizes was associated with a 1.2% increase in the change in the stock of single family homes, all else equal. But that same 10% increase in lot sizes reduced multi-family housing changes by 7.8%. Relatively speaking, then, restrictive zoning seems to have a larger negative impact on multifamily housing than it does a positive effect on single family homes.

POLICY CONSIDERATIONS

By affecting home prices and the mix of residential housing, zoning is sure to carry demographic consequences. Consider what some have bemoaned as the graying of Connecticut's workforce and what they perceive as an exodus of the crucial 25-34 year-old population cohort to sunnier economic climes. There is little question that Connecticut is an old state and growing older. The median age of the state's population — 39.4 compared with a U.S. average of 36.8—makes us the 7th oldest state in the country.

There is less truth to the assertion that young people are leaving Connecticut in droves. A recent article in the state Labor Department's *Economic Digest* (February, 2010 by Patrick Flaherty) points out that an alarming 15-year plunge in the number of 25-34 year-olds is entirely explained by the fact that 15 years earlier, the 10-19 year old cohort was much smaller than the then-resident group of 25 to 34 year olds that they would later replace. What's more, American Community Survey data show that between 2004 and 2005, while 5,730 single, college-educated 25-39 year olds left the state, 5,900 moved in, for a net increase of 170. That's just one year of data, and it's hardly a flood of new entrants, but it's not a mass evacuation of young people, either.

Still, if Connecticut hopes to build a cadre of younger workers to replace its aging, retirement-bound baby boomers, the state will most likely have to import them through a combination of challenging jobs, good pay, and a broad mix of reasonably-priced housing. What role zoning might play in this enterprise is not altogether clear.

To the extent that zoning restrictions artificially limit the supply of multi-family rental units that might appeal to entry-level workers, then they seem to work at cross purposes with broader public policy objectives.

But by lowering single family home values, zoning may make it easier for those same workers to later trade up, though at a price. By promoting lower-density, suburban development at the expense of urban living, minimum lot size zoning fuels urban sprawl, and its associated pathologies of long distances to work, automobile dependence, congested roadways, high per-capita infrastructure costs, and other social syndromes. That hardly seems like a recipe for attracting young, upwardly-mobile professionals to a graying state.

MINIMUM LOT RESTRICTIONS RAISE THE STOCK OF SINGLE FAMILY HOMES WHILE LOWERING THAT OF APARTMENTS

Dependent Variable: Percent Change in Home Stock

	Coefficient	P-Value	Mean	Elasticity
Constant	0.5490	0.0000		
lot	0.0085	0.0605	1.4690	0.1278
roomprice	0.0016	0.0238	30.5115	0.4892
percapinc	-0.0023	0.0082	30.5127	-0.7114
age	-0.0163	0.0001	35.5247	-5.9454
age^2	0.0002	0.0002		
growth	0.2730	0.0000	0.0731	0.2046
rent	-0.0001	0.0071	758.5617	-0.8253
distBOS	-0.0005	0.0226	119.8086	-0.6454
Adjusted R^2	0.43			

Dependent Variable: Percent Change in Apartment Stock

	Coefficient	P-Value	Mean	Elasticity
Constant	0.0003	0.9995		
lot	-0.0617	0.0303	1.4690	-0.7802
roomprice	-0.0028	0.5114	30.5115	-0.7451
percapinc	0.0076	0.1591	30.5127	1.9844
age	0.0045	0.8577	35.5247	1.3716
age^2	-0.0002	0.6413		
growth	0.1198	0.7601	0.0731	0.0754
rent	-0.0001	0.5811	758.5617	-0.8818
distBOS	0.0016	0.2560	119.8086	1.6877
Adjusted R^2	0.03			

SOURCE: *The Connecticut Economy*.